

Please add claims 74-120:

74. The DNA molecule according to claim 71, wherein said DNA sequence is selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, a DNA sequence encoding the amino acid sequence of SEQ ID NO: 2, a DNA sequence encoding the amino acid sequence of SEQ ID NO: 4, a DNA sequence encoding the amino acid sequence of SEQ ID NO: 6, a DNA sequence that has at least 65% sequence identity with the nucleotide sequence of SEQ ID NO: 1, a DNA sequence that has at least 65% sequence identity with the nucleotide sequence of SEQ ID NO: 3, a DNA sequence that has at least 65% sequence identity with the nucleotide sequence of SEQ ID NO: 5, a nucleotide sequence that encodes an amino acid sequence that has at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 2, a nucleotide sequence that encodes an amino acid sequence that has at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 4, and a nucleotide sequence that encodes an amino acid sequence that has at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 6;

wherein said DNA sequence exhibits sufficient sequence identity to an endogenous citrate synthase gene to reduce expression of said endogenous citrate synthase gene, relative to the expression of said endogenous citrate synthase gene in a wild type plant cell, when the DNA molecule is introduced and transcribed in a transgenic plant cell.

75. A vector comprising the DNA molecule according to claim 74.

76. A vector comprising the DNA molecule according to claim 71.

77. The vector according to claim 76, wherein said vector is plasmid pKS-C'Sa, deposited as DSM 8880.

78. The vector according to claim 76, wherein said vector is plasmid TCSAS, deposited as DSM 9359.

79. A recombinant double-stranded DNA molecule comprising the following constituents:

- (i) a promoter functional in plants; and
- (ii) a portion of a DNA sequence coding for a citrate synthase,

wherein said portion of said DNA sequence is at least 15 basepairs in length and is fused to said promoter in antisense orientation so that the non-coding strand of said DNA sequence is transcribed; and

wherein said DNA sequence is of sufficient length to reduce expression of an endogenous citrate synthase gene, relative to the expression of said endogenous citrate synthase gene in a wild type plant cell, when the DNA molecule is introduced and transcribed in a transgenic plant cell.

80. A vector comprising the DNA molecule according to claim 79.

81. A bacterial cell comprising:

(a) the DNA molecule according to any one of claims 71, 74 or 79,

or

(b) the vector according to any one of claims 75-78 or 80.

82. A transgenic plant cell comprising:

(a) the DNA molecule according to either claim 71, 74 or 79, or

(b) the vector according to any one of claims 75-78 or 80.

83. A transgenic plant comprising the transgenic plant cell

according to claim 82, wherein said transgenic plant cell has a reduced citrate synthase activity in comparison to the citrate synthase activity of a wild type plant cell.

84. A DNA molecule comprising

(i) a coding region for a citrate synthase (EC No. 4.1.3.7.) of a plant of the *Solanaceae* family or the *Chenopodiaceae* family operably linked to

(ii) suitable elements controlling the transcription of said coding region in procaryotic and/or eucaryotic cells;

wherein said DNA molecule is at least 15 basepairs in length and, when integrated into the genome of a cell of a plant, is transcribed to yield RNA that reduces the activity of an endogenous citrate synthase in said cell of a plant in comparison to the citrate synthase activity of a wild type plant cell.

85. The DNA molecule according to claim 84, which is from a plant of the species *Solanum tuberosum*.

86. The DNA molecule according to claim 84, which is from a plant of the species *Nicotiana tabacum*.

87. The DNA molecule according to claim 84, which is from a plant of the species sugar beet (*Beta vulgaris*).

88. The DNA molecule according to claim 84, wherein said coding region comprises the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence having at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 2.

89. The DNA molecule according to claim 84, wherein said coding region comprises the amino acid sequence of SEQ ID NO: 4 or an amino acid sequence having at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 4.

90. The DNA molecule according to claim 84, wherein said coding region comprises the amino acid sequence of SEQ ID NO: 6 or an amino acid sequence having at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 6.

91. The DNA molecule according to claim 84, wherein said coding region comprises the nucleotide sequence of SEQ ID No: 1 or a nucleotide sequence having at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 1.

92. The DNA molecule according to claim 84, wherein said coding region comprises the nucleotide sequence of SEQ ID No: 3 or a nucleotide sequence having at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 3.

93. The DNA molecule according to claim 84, wherein said coding region comprises the nucleotide sequence of SEQ ID No: 5 or a nucleotide sequence having at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 5.

94. A vector comprising the DNA molecule according to any one of claims 84 to 93.

95. A bacterial cell comprising

- (a) the DNA molecule according to any one of claims 84 to 93 or
- (b) a vector comprising said DNA molecule.

96. A transgenic plant cell comprising the DNA molecule according to any one of claims 84 to 93.

97. A transgenic plant comprising the transgenic plant cell according to claim 96, wherein said transgenic plant cell has a reduced citrate synthase activity in comparison to the citrate synthase activity of a wild type plant cell.

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98. A method for reducing the synthesis of an endogenous citrate synthase in a plant cell compared to the synthesis of a citrate synthase in a wild type plant cell, comprising introducing into a plant cell the DNA molecule according to any one of claims 84 to 93 to obtain a transgenic plant cell and transcribing from said DNA molecule non-translatable mRNA, wherein said transcribing results in a reduction in the synthesis of endogenous citrate synthase in the transgenic plant cell.

99. A method for reducing the synthesis of an endogenous citrate synthase in a plant cell compared to the synthesis of a citrate synthase in a wild type plant cell, comprising introducing into the plant cell the vector according to claim 94 to obtain a transgenic plant cell and transcribing from said DNA molecule non-translatable mRNA, wherein said transcribing results in a reduction in the synthesis of endogenous citrate synthase in the transgenic plant cell.

100. A transgenic plant comprising transgenic plant cells having integrated into their genome a recombinant double stranded DNA molecule comprising  
(a) a promoter functional in plant cells; and

(b) a DNA sequence coding for citrate synthase or a part of said DNA sequence of at least 15 base pairs, wherein said DNA sequence or said part thereof is operably linked to said promoter;

wherein transcription of said DNA molecule suppresses an endogenous citrate synthase activity in said transgenic plant such that said transgenic plant cells have a reduced citrate synthase activity in comparison to the citrate synthase activity of wild type plant cells; and

wherein said transgenic plant, in comparison to a wild type plant, displays an inhibition of flower formation.

101. The transgenic plant according to claim 100, which is selected from the group consisting of a grain plant, a fruit plant, a vegetable plant, an ornamental plant, a plant that develops tubers or beet as a storage organ, tobacco, potato, manioc, rapeseed and sugar cane.

102. A storage organ of a plant according to any one of claims 100 or 101 comprising said transgenic plant cells having a reduced citrate synthase activity in comparison to the citrate synthase activity of wild type plant cells.

103. The storage organ according to claim 102 which is a tuber.

104. The transgenic plant according to claim 100, comprising a recombinant DNA comprising the following constituents:

- a) a promoter functional in plants; and
- b) a DNA sequence coding for citrate synthase;

wherein said DNA sequence is fused to said promoter in antisense orientation so that the non-coding strand of said DNA sequence is transcribed.

105. The transgenic plant according to claim 104, wherein said citrate synthase comprises the amino acid sequence of SEQ ID NO: 2 or an amino acid sequence having a sequence identity of at least 65% to the sequence of SEQ ID NO: 2.

106. The transgenic plant according to claim 104, wherein said citrate synthase comprises the amino acid sequence of SEQ ID NO: 4 or an amino acid sequence having a sequence identity of at least 65% to the sequence of SEQ ID NO: 4.

107. The transgenic plant according to claim 104, wherein said citrate synthase comprises the amino acid sequence of SEQ ID NO: 6 or an amino acid sequence having a sequence identity of at least 65% to the sequence of SEQ ID NO: 6.

108. The transgenic plant of claim 104, wherein said DNA sequence comprises the nucleotide sequence of SEQ ID No.1 or a nucleotide sequence having at least 65% sequence identity to the sequence of SEQ ID NO: 1.



109. The transgenic plant of claim 104, wherein said DNA sequence comprises the nucleotide sequence of SEQ ID No:3 or a nucleotide sequence having at least 65% sequence identity to the sequence of SEQ ID NO: 3.

110. The transgenic plant of claim 104, wherein said DNA sequence comprises the nucleotide sequence of SEQ ID No:5 or a nucleotide sequence having at least 65% sequence identity to the sequence of SEQ ID NO: 5.

111. A seed of the transgenic plant according to any one of claims 100, 101 or 104-110.

112. A process for inhibiting flower formation in a transgenic plant compared to flower formation in a wild type plant, wherein the citrate synthase activity in the cells of said transgenic plant are reduced compared to the citrate synthase activity in wild type plant cells, comprising the steps of

(a) introducing into a plant cell a recombinant double-stranded DNA molecule to generate a transgenic plant cell, said DNA molecule comprising

(i) a promoter functional in plant cells; and

(ii) a DNA sequence coding for citrate synthase or a part of said DNA sequence, which is at least 15 bp and is sufficient in length to suppress endogenous citrate synthase activity,

wherein said DNA sequence is operably linked to said promoter

and wherein said DNA molecule forms transcripts through which an endogenous citrate synthase activity can be suppressed; and

(b) regenerating the transgenic plant from said transgenic cell.

113. A process to increase the storage capability of storage organs in a transgenic plant compared to the storage capability of storage organs in a wild type plant, wherein the citrate synthase activity in the cells of said transgenic plant are reduced compared to the citrate synthase activity in wild type plant cells, comprising the steps of

(a) introducing into a plant cell a recombinant double-stranded DNA molecule to generate a transgenic plant cell, said DNA molecule comprising

(i) a promoter functional in plant cells; and

(ii) a DNA sequence coding for citrate synthase or a part of said DNA sequence, which is at least 15 bp and is sufficient in length to suppress endogenous citrate synthase activity,

wherein said DNA sequence is operably linked to said promoter

and wherein said DNA molecule forms transcripts through which an endogenous citrate synthase activity can be suppressed; and

(b) regenerating the transgenic plant from said transgenic cell.

114. A process for reducing the sprouting of tubers of a transgenic tuberous plant compared to the sprouting of tubers in a wild type plant, wherein the

citrate synthase activity in the cells of said transgenic plant are reduced compared to the citrate synthase activity in wild type plant cells, comprising the steps of

(a) introducing into a plant cell a recombinant double-stranded DNA molecule to generate a transgenic plant cell, said DNA molecule comprising

(i) a promoter functional in plant cells; and

(ii) a DNA sequence coding for citrate synthase or a part of said DNA sequence, which is at least 15 bp and is sufficient in length to suppress endogenous citrate synthase activity,

wherein said DNA sequence is operably linked to said promoter

and wherein said DNA molecule forms transcripts through which an endogenous citrate synthase activity can be suppressed; and

(b) regenerating the transgenic plant from said transgenic cell.

115. The process according to any one of claims 112 to 114, wherein antisense RNA is transcribed from said DNA sequence.

116. The process according to claim 115, wherein said DNA sequence is selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, a DNA sequence that has at least 65% sequence identity with the nucleotide sequence of SEQ ID NO: 1, a DNA sequence that has at least 65% sequence identity with the nucleotide sequence of SEQ ID NO: 3, and a DNA sequence that has at least 65% sequence identity with the nucleotide sequence of SEQ ID NO: 5,

wherein said DNA sequence exhibits sufficient sequence identity to an endogenous citrate synthase gene to reduce expression of said endogenous citrate synthase gene when the DNA molecule is introduced and transcribed in a transgenic plant cell.

117. The process according to claim 115, wherein said DNA sequence codes for an amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, an amino acid sequence that has at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 2, an amino acid sequence that has at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 4, and an amino acid sequence that has at least 65% sequence identity with the amino acid sequence of SEQ ID NO: 6,

wherein said DNA sequence exhibits sufficient sequence identity to an endogenous citrate synthase gene to reduce expression of said endogenous citrate synthase gene when the DNA molecule is introduced and transcribed in a transgenic plant cell.

118. A transgenic plant comprising the recombinant double-stranded DNA molecule according to claim 71 integrated into the genome of plant cells of said transgenic plant.

119. A seed of the transgenic plant according to claim 118.